

OFFICE OF POPULATION CENSUSES AND SURVEYS
SOCIAL SURVEY DIVISION

Attitudes to an anti-dazzle fence

A survey carried out for the
Transport & Road Research Laboratory

Karen Dunnell

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OFFICE OF POPULATION CENSUSES AND SURVEYS
SOCIAL SURVEY DIVISION

Attitudes to an anti-dazzle fence

A survey on drivers' and passengers' attitudes
to an anti-dazzle fence on the
M6 motorway, carried out for the
Transport & Road Research Laboratory,
Department of the Environment

Karen Dunnell

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Special thanks go to all my colleagues in Social Survey Division who worked on the survey, in particular Caroline Finch and those who braved the elements with such enthusiasm during feasibility and field work periods.

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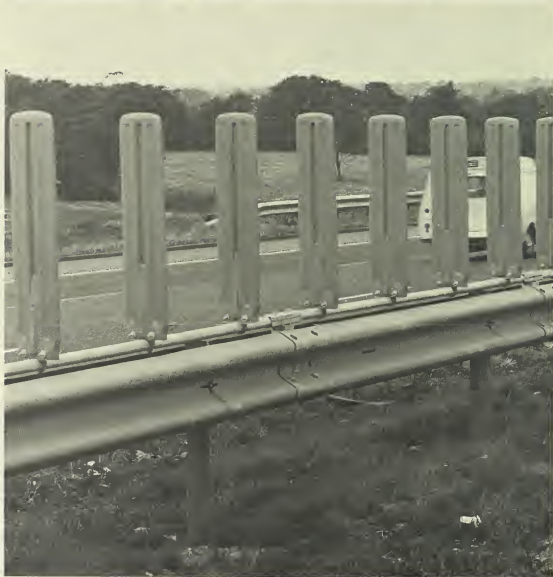
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Summary of the main findings

1. The report presents findings from an interview survey at Corley Service area on the M6 motorway in November 1974, of 2542 drivers and 518 passengers who were asked about their views on the anti-dazzle fence from the point of view of driving and its effect on the appearance of the motorway.
2. Drivers of heavy vehicles made up only just over a third of the drivers interviewed, but they drove past the anti-dazzle fence much more often than the drivers of light vehicles. In light vehicles only passengers were interviewed.
3. Two fifths of the light vehicle passengers interviewed and between two thirds and three quarters of all the drivers had noticed the anti-dazzle fence. Between a third and a half of all travellers noticed the anti-dazzle fence on their first journey past it, but even among the daily travellers there was a small proportion who denied having noticed the fence.
4. Three fifths of the passengers and between a quarter and a third of all the drivers had not noticed the anti-dazzle fence. Another one in ten of the drivers said they were not concerned with the view or with appearance. Up to a fifth of the rest expressed negative attitudes towards the appearance of the fence.
5. More than two fifths of the light vehicle drivers and more than a third of the heavy vehicle drivers said they were less aware of lights on the experimental stretch than on other stretches of motorway. Of those who had noticed the fence eight out of ten thought it cut out either all or most of the dazzle. Overall the fence seemed to be equally effective for heavy vehicle drivers and light vehicle drivers.
6. More than a tenth of light vehicle drivers said the fence made them drive faster in the dark. Six per cent said they were more likely to use the fast lane. These two changes in night driving behaviour occurred only among light vehicle drivers. But a tenth of the heavy vehicle drivers said the fence made them more likely to use main beam headlights, while a fifth of the light vehicle drivers said this.



1 Introduction

One of the many concerns of the Department of the Environment's Transport and Road Research Laboratory is the reduction of night accidents. Nearly a third of all motoring accidents involving death or personal injury happen in the dark, and the accident rate at night is 1.3 times that in the day.¹ One of the factors contributing to this is dazzle from vehicle headlights on unlit roads which can result in serious loss of seeing distance. A survey carried out in 1971 on night driving² found that three quarters of drivers who drove on unlit roads said they were sometimes disturbed by approaching headlights.

One way of reducing this hazard is to provide lighting on roads. This lessens the problem of dazzle from headlights and also greatly improves general visibility. But the installation of lighting is very expensive. A cheaper solution for motorways and other dual carriageway roads is the provision of a barrier in the central reservation which intercepts the light from headlamps. The barrier does not have to be solid, as long as it cuts off the light up to a given angle from the oncoming traffic. A wide variety of materials from shrubs to expanded metal panels can be used.

Such fences are demonstrably effective in reducing dazzle, yet the key question of their effect on night accidents remains to be answered. In January 1974 the Transport and Road Research Laboratory (TRRL) installed 19.5km (12 miles) of a vane-type fence on the M6 motorway. With the aid of the police they are currently monitoring the accident situation, the severity of accidents and any effects on the use of different lanes of the motorway. Results from this part of the work are expected in 1977, but in the meantime a survey has been carried out at TRRL's request by the Social Survey Division of the Office of Population Censuses and Surveys. This looks at the impressions and reactions of the public to the anti-dazzle fence as a driving aid and also as an intrusion on the environment.

¹ Transport and Road Research Laboratory, Night visibility: the accident problem, Leaflet 266, 1971.

² E.J. Jenkins, Night driving (in preparation) Social Survey Division, Office of Population Censuses and Surveys.

- 1.1 Aims of the survey
- As has already been mentioned there were two main aspects of the fence that were of interest - its appearance and its effect on driving. Interest in the appearance of the fence meant interviewing passengers as well as drivers. The survey aimed to find out first whether or not travellers on the experimental stretch of motorway had noticed the anti-dazzle fence and were aware of its purpose; secondly, if they were aware of the fence, what did they think about it from an environmental point of view? Was it visually an acceptable intrusion on the motorway?
- Only drivers were asked for their comments on the anti-dazzle fence and its effect on driving. First we aimed to assess the extent to which drivers were bothered by headlight dazzle and how the experimental stretch of motorway compared with other stretches in this respect. Secondly we were interested in their assessment of how effective the fence was at cutting out dazzle and their ideas for improving it. The third area of interest was whether the fence altered driving behaviour in any way. Finally, since the anti-dazzle fence is in many respects an alternative to lighting on motorways and an aid to safety we were interested in drivers' views on these aspects of the fence.
- 1.2 Choice of place and time
- Ideally we would have liked to carry out a survey on a sample of all travellers on the motorway. But selecting a sample of vehicles driving on the motorway would have involved stopping them at some point, which, for obvious legal and safety reasons was not possible. Instead right from the start, we had to accept the limitation of selecting a sample from vehicles that entered the service station on the motorway. This service area, at Corley, was virtually in the centre of the experimental stretch of M6 and provided a twenty four hour cafeteria and petrol service for travellers.
- Since the major object of the study was to test the effectiveness of the barrier as an anti-dazzle fence, it was important to interview a large number of drivers during hours of darkness. This suggested winter as the most productive time for fieldwork. However, since the interviewers would be working outdoors, and informants might be reluctant to stand about in the cold while being interviewed, we compromised on November as the best time for fieldwork.
- It was likely that the type of traveller and vehicle would vary according to the time of day or night and the day of the week, and therefore their reactions to the fence might be different. To cover this, it was thought desirable to carry out the fieldwork day and night for seven consecutive days. So the first week of November 1974 was chosen.
- 1.3 Design of the sample
- Although TRRL were counting vehicles passing along the experimental stretch of the M6 as part of their monitoring of accident rates, there were no figures for the number of vehicles entering the service area. The service station management were able to provide a general idea of the pattern of peaks and troughs in the traffic flow throughout the week, but this was not detailed enough to estimate numbers of vehicles entering the service area. The first

task therefore was to carry out a series of counting exercises.

These establish that the flow of traffic into the service area was greatest throughout the daytime with a peak at the evening rush hour period. After this there was a steady flow of traffic until about 22.00 hrs when it declined. If vehicles had been systematically sampled using the same interval throughout the 24 hour period a much greater number of vehicles would have been selected in the daytime than in the dark. Since the subject of the survey was concerned with driving in the dark as well as with daytime conditions a similar number of daytime and dark interviews were required - ideally about a thousand of each with drivers and an additional sample of passengers travelling in daylight. This indicated the use of a smaller sampling interval to select the night-time drivers.

The level of traffic after 22.00 hrs and the practical problems arising from employing interviewers to work in the open all night in service area car parks, led to limiting work from 07.00 hrs to 22.00 hrs. It also proved impossible to interview people in vehicles which came in only for petrol because they did not enter any of the four vehicle parks. They stopped for a very short time and congestion at the pumps would have occurred if they had been asked to wait.

It was planned therefore to carry out the survey on samples of daytime and night-time drivers and daytime passengers entering the vehicle parks at Corley Service Station on the M6 between 07.00 hrs and 22.00 hrs during the first seven days of November 1974.

1.4 Selection of the samples

Representative samples of both drivers and passengers could be selected by taking one in n vehicles entering the four parking areas. As there was no accurate way of predicting the number of vehicles that would enter the vehicle parks during the week of the survey, counting and selecting of vehicles for the sample as well as the interviewing had to be carried out as part of the field operation.

Corley service area housed police and RAC stations, so police cars and RAC vans drove in and out at all times. Vehicles attending breakdowns also drove in frequently. It was decided therefore to regard police cars, RAC vans and other vehicles serving the public in an emergency as ineligible if they were selected as part of the sample. This was easy to do as they could all be easily identified.

Passengers were rarely carried by lorries; if they were, they would view the barrier like passengers in coaches, from a much higher position than passengers in cars and vans. In addition, the procedure for selecting say three passengers at random from a coach load would have been complicated, and unless the sample of coach passengers was large enough for separate analysis their opinions

might have obscured the results. It was therefore decided to limit the passenger sample to passengers of all vehicles apart from lorries and coaches which were ineligible. Since passengers were only being asked questions about the appearance of the fence which could not be judged in the dark, the sampling was restricted to the daylight period. So the passenger sample was a sample of passengers in light vehicles entering the parks between 07.00 hrs and 17.00 hrs.

The counting and selecting procedure carried out in each of the four parks was the same. During the daytime one interviewer counted all vehicles entering the park using a hand operated counter. She was provided with sampling sheets which had numbers at an interval of one in seven. Every other number was marked as part of the passenger sample. When the counting interviewer reached the number on the sheet, she decided whether or not the vehicle was eligible for interview.

If the selected vehicle was eligible the counting interviewer assigned it to another interviewer and told her whether it was part of the driver or passenger sample. If it was part of the driver sample the driver of the vehicle was interviewed. If the vehicle was part of the passenger sample the interviewer assigned to it counted the number of passengers aged 18 or over and selected one at random using a set of random numbers on the front of the schedule. Thus during the daytime all vehicles entering the parks had a one in 14 chance of being part of our driver sample and the same chance of inclusion in the passenger sample.

During the period 17.00 hrs to 22.00 hrs when it was dark the sampling procedure was simplified by selecting a sample of drivers only. This was done in the same way using an interval of one in five vehicles.

One unpredictable complication was that the flow of traffic into the service area during the daytime was greater than estimated. As vehicles were selected at fixed intervals the target number of daytime interviews was reached by the fifth day. It was decided that as the fieldwork was so expensive interviewing should stop during the daytime for the last two days. Counts of all vehicles entering the parks were continued for these two days and selecting and interviewing drivers after dark carried on as planned for the whole seven day period.

Table 1 shows the number of vehicles sampled during the seven evenings of the survey for the night-time drivers sample. It also gives the number of vehicles selected during five days as the daytime driver and passenger samples. The number of ineligible vehicles is subtracted giving the number of vehicles eligible for inclusion in the survey. Some extra ineligible vehicles - interviewer's cars and vehicles that had already taken part in the survey - were identified by the interviewer when attempting to carry out an interview. They were not excluded by the counting interviewer.

Table 1 Numbers of vehicles selected and eligible for interview

	Daytime passengers	drivers	Night-time drivers
number of vehicles sampled	1413	1432	1822
ineligible			
police car/RAC van/emergency vehicles	15	9	26
heavy vehicle, ineligible for passenger sample	506	-	-
no eligible passengers	421	-	-
interviewer's car/informant already interviewed	11	22	46
number of eligible vehicles	460	1401	1750

The sampling is discussed in greater detail in Appendix A. This section has described how the three samples of vehicles with eligible informants in them were chosen - the next looks at the response.

1.5 Response

Table 1 has shown the numbers of vehicles eligible for interview in each of the three samples. There are four reasons why interviews were not carried out with either a driver or passenger in each of these eligible vehicles. The most common reason was the problem of contacting the vehicle. Some vehicles drove straight into the car park and straight out again without stopping. The drivers probably either changed their minds because the service area was too crowded or they had missed the sign posts for petrol only. A few stopped for a very short time for example to change drivers or check a tyre and the interviewer was unable to reach the vehicle from the sampling point before it drove off again. In a sense these vehicles could be seen as ineligible since they never really parked in the parks. However since we defined our eligible population as vehicles entering the parks because this was the only feasible way to count them, they were classified as non-contacts.

Another small source of non-contact arose when the vehicle parked and its occupant(s) left it before the interviewer could reach the vehicle.

A reason for non-contact affecting mainly the night driver sample derived from the unpredictable flow of traffic into the vehicle parks and the inability of the supply of interviewers to cope with peaks. This happened mainly during the first two of the evening rush hour periods on the Friday and Saturday which overlapped with an interviewer shift change and a change in the sampling interval. Being at the beginning of the fieldwork these change-overs were rather unfamiliar and they unfortunately coincided with a much larger volume of traffic than was anticipated from earlier counting exercises.

The fourth reason for not obtaining an interview was refusal. Table 2 shows the number of interviews obtained from the three samples of eligible vehicles and the numbers where no interview was carried out for the reasons given. It can be seen that interviews were obtained with passengers in 83% of eligible vehicles, with 88% of daytime drivers and with rather less, 74%, of night-time drivers. The lower response at night is explained mostly by the high non-contact rate rather than a different refusal rate. If just the vehicles that were approached for interview are considered only four per cent of the passengers refused, three per cent of daytime drivers and six per cent of night-time drivers. The reasons given for refusing was lack of time in virtually all, 82%, of cases.

Table 2 Response and non-response in the three samples of eligible vehicles

	Daytime				Night-time	
	passengers		drivers		drivers	
	No.	%	No.	%	No.	%
number of eligible vehicles	460	100	1401	100	1750	100
non-contacts						
vehicle did not stop, informant not caught	54	12	110	8	241	14
no interviewer available	8	2	13	1	121	7
refusals	14	3	37	3	87	5
interviews	384	83	1241	88	1301	74

In summary then, refusals accounted for only a very small proportion of the non-response, most of which was due to vehicles not stopping. The night-time response was particularly affected by non-contacts due to practical difficulties which in theory were avoidable.

1.6 Weighting

As was noted earlier, if the vehicle was part of the passenger sample, only one passenger in the vehicle was selected for interview. This method of sampling was adopted because it would have been unreasonable to expect all passengers in a vehicle to take turns at being interviewed and it would have proved impossible to plan the supply of interviewers to cope with the unpredictable arrival of vehicles with several passengers. So those passengers in such vehicles had a smaller chance of being selected than passengers who were alone in a vehicle with a driver. Therefore the passenger sample was not representative of all passengers entering the car park and had to be re-weighted. Those passengers who were the sole passenger were given a weight of one, those who were one of two passengers were given a weight of two and so on.

In all subsequent analyses in the report we are concerned with the reweighted sample of 518 passengers. The other two samples of drivers, 1241 daytime drivers and 1301

night-time drivers, will be considered separately in the report, partly because it was expected that they would answer differently, and partly because night-time drivers had a four times greater chance of selection than daytime drivers.

1.7 The report

The rest of the report is divided into six chapters, each one dealing with one of the aims of the survey discussed earlier. The next chapter looks in detail at the people we interviewed; the type of vehicle they travelled in, their mileage, their experience of the M6 as well as more personal attributes like age and sex. These are some of the variables that will be related to different attitudes towards the anti-dazzle fence.

Chapter 3 discusses how many travellers noticed the fence and knew what it was for and what kinds of travellers were most likely to be aware of it. Chapter 4 looks at drivers' and passengers' attitudes towards the visual aspects of the fence. The next two chapters are concerned only with the effect of the fence on driving and therefore discuss just the two samples of drivers. The first of these discusses the problem of dazzle on motorways, particularly the experimental stretch of M6 and the extent to which drivers feel the anti-dazzle fence is effective. The way that the fence may affect the use of headlights, the fast lane and driving speeds are the subject of Chapter 6 which also looks at the drivers' views on the fence as an alternative to lighting on motorways and their ideas about its safety value. The results of the survey are drawn together in the concluding chapter.

2 Travellers at Corley

The aim of this chapter is to describe the people who were interviewed about their views on the anti-dazzle fence. In particular, to look at those attributes and experiences that could be expected to relate to their attitudes to the fence; the concern of the rest of the report.

2.1 Night and day

As explained in the introductory chapter special sampling arrangements were made to ensure an adequate number of interviews with drivers who had experienced the anti-dazzle fence after dark. It was possible that those who had experienced the fence just before their interview would have different reactions from those interviewed during the day who had driven with the anti-dazzle fence at night some time in the past.

In the event seven tenths of the drivers interviewed during daylight had driven on the experimental stretch of M6 in the dark since the fence was put up at the beginning of January 1974. Nearly all the night-time drivers, 96%, had driven there during the day. Drivers were asked about those time periods they had experienced rather than just the one they happened to have been selected in.

There are no comparisons of this kind to be made between passengers. Passengers were only interviewed during daylight as they were just asked questions about the appearance of the fence.

2.2 Type of vehicle

Drivers of all kinds of vehicles were interviewed, but the passenger sample was restricted to light vehicles, that is vans, minibuses, cars or motorbikes. Table 3 shows the type of vehicles that the informants were travelling in. More than nine tenths of the passengers interviewed were in ordinary motorcars. During the daytime 55% of drivers were driving cars, 37% lorries. Not surprisingly after dark, the proportion in cars rose and that in lorries fell. Of the night-time drivers 24% were driving lorries, 68% cars. Nevertheless during the whole period 07.00 hrs to 22.00 hrs more than one third of the vehicles entering the parks were lorries.

The lorry and the car accounted for the vast majority of vehicles in which informants were travelling. The numbers in vans or coaches for example were too small for comparisons to be made with them. The vehicles have therefore been classified into two groups for most of the report. Lorries and coaches are considered together as heavy vehicles; cars, vans, minibuses and motorbikes as light vehicles. An important distinguishing feature of the heavy/light grouping

is the height of the driving position, which in heavy vehicles is much higher from the ground than in light vehicles.

Table 3: Type of vehicle that informants were travelling in

	Daytime		Night-time	
	passengers	drivers	passengers	drivers
	%	%	%	%
Heavy vehicles				
lorry	-	37	24	-25
coach	-	1	1	
Light vehicles				
vans	5	6	5	-75
minibus	3	1	1	
car	92	55	69	
motorbike	*	*	*	
Number of informants [†] (=100%)	500	1239	1296	

[†] In this table and all subsequent tables in the report the small number of informants who did not answer a particular question have been excluded.

* Less than 0.5%

2.3 Driving during the previous year

This section looks at the driving reported to have been done in the year before interview by the drivers interviewed during the day and night, grouped by type of vehicle. Table 4 shows the total mileage said to have been done. There was no difference for either light or heavy vehicles between the mileage of those drivers interviewed during the day and those interviewed at night. Not surprisingly however heavy vehicle drivers had driven many more miles during the year than had light vehicle drivers. Two thirds of them had done 50,000 or more miles; fewer than a tenth of the drivers of light vehicles had done as much mileage. About half the light vehicle drivers had covered less than 20,000 miles during the year.

Two fifths of the passengers either did not drive or had not driven during the year before being interviewed. Another two fifths had driven fewer than 10,000 miles and the remaining fifth had driven over 10,000 miles.

We also asked drivers and those passengers who drove how much of their last year's mileage had been done on motorways and how much in the dark. Their answers are given in Tables 5 and 6. As can be seen from Table 5 about motorway driving, there was again no difference between drivers;

Table 4 Estimated number of miles driven during previous twelve months

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Number of miles	%	%	%	%	%
none - non-driver	38	-	-	-	-
- driver	2	-	-	-	-
less than 10,000	37	19	3	15	2
10,000 < 20,000	12	32	5	33	5
20,000 < 30,000	5	22	5	24	7
30,000 < 40,000	3	13	7	12	8
40,000 < 50,000	2	7	14	7	12
50,000 < 60,000	1	4	29	5	20
60,000 < 70,000		1	13	1	12
70,000 < 80,000		1	13	1	18
80,000 or more		1	11	2	16
<i>Number of informants (=100%)</i>	516	773	459	969	323

Table 5 Proportion of last year's mileage done on motorways

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Last year's mileage	%	%	%	%	%
none - non-driver	40	-	-	-	-
half or more on motorways	15	50	84	53	85
less than half on motorways	33	50	16	47	15
none on motorways	12	-	-	-	-
<i>Number of informants (=100%)</i>	516	776	463	974	325

interviewed in the daytime and those interviewed at night. Drivers of heavy vehicles did a greater proportion of their mileage on motorways than other drivers. More than 80% of them drove half or more of their annual mileage on motorways compared with just over 50% of drivers of light vehicles.

Table 6 however shows that the proportion of driving done in the dark was related to the time of interview rather than the type of vehicle being driven. This was to be expected since as we have pointed out those who do little driving in the dark would have had a smaller chance of being selected at night than those who do the majority of their driving in the dark.

Table 6 Proportion of last year's mileage done in the dark

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Last year's mileage	%	%	%	%	%
none - non-driver	40	-	-	-	-
half or more in dark	14	16	14	25	33
less than half in dark	42	83	82	75	67
none in the dark	4	1	4	-	-
<i>Number of informants (=100%)</i>	515	777	462	973	322

Of the daytime drivers 15% said that half or more of their driving was in the dark - 27% of the night-time drivers reported this. Although there was no difference between the daytime light and heavy vehicle drivers in this respect, the night-time heavy vehicle drivers had done more of their driving after dark than the light vehicle drivers interviewed at night. This difference might be explained by lorry drivers who did night shift work. Few, if any, light vehicle drivers would have driven only at night.

2.4 Age and experience

Not surprisingly the age of drivers when interviewed was correlated with the total length of time that they had been driving. Both characteristics are discussed here. Table 7 shows the number of years that the different groups of informants said they had been driving altogether. As can be seen there was no difference in the total driving experience of heavy vehicle drivers interviewed during the day and night. A fifth had been driving for less than ten years, nearly two fifths for twenty years or more. The drivers of light vehicles tended to have less experience than this; those interviewed after dark having least of all. Of daytime light vehicle drivers 27% had been driving for less than ten years compared with 37% of the night-time light vehicle drivers.

A similar pattern is found in the age differences of drivers shown at Table 8. The age distributions of the daytime and night-time heavy vehicle drivers are very similar. Only six per cent of them were under 25 years old. The main reason for this is that the minimum age for holding a Heavy Goods Vehicle driving licence is 21.

In comparison, and reflecting the differences in driving experience - drivers of light vehicles interviewed during the day were considerably older than those sampled after dark. Only two per cent of the night-time light vehicle drivers were aged 60 or more compared with seven per cent of those driving during daylight. At the other end of the age range considerably more of the night-time drivers

Table 7 Number of years driving experience

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Number of years driving experience	%	%	%	%	%
none - does not drive	38	-	-	-	-
less than 5 years	15	9	4	13	3
5 but less than 10	18	18	14	23	17
10 but less than 20	14	35	45	34	43
20 but less than 30	9	20	22	20	24
30 years or more	6	18	15	10	13
<i>Number of informants (=100%)</i>	<i>516</i>	<i>777</i>	<i>464</i>	<i>974</i>	<i>325</i>

Table 8 Age of informants

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Age (in years)	%	%	%	%	%
18-24 [†]	21	9	6	17	6
25-29	16	20	19	19	22
30-39	18	27	40	28	34
40-49	18	20	20	21	27
50-59	14	16	13	13	10
60-69	10	7	2	2	1
70 or more	3	*	-	-	-
<i>Number of informants (=100%)</i>	<i>518</i>	<i>777</i>	<i>464</i>	<i>974</i>	<i>324</i>

[†] Four drivers were 17 years old but have been included here.

17% were under 25 compared with nine per cent of those interviewed during the day.

The small proportion of drivers aged 60 or more sampled after dark is consistent with the findings of the night

driving survey¹ which showed that people in this age group were much more likely than younger people to restrict their driving to daylight hours. Most people of this age would have been able to choose to do this if they so wished because they no longer had to journey to and from work at fixed hours. The survey also showed that the younger drivers did a greater proportion of their driving after dark than older people which helps explain the high proportion of young drivers sampled in light vehicles after dark in this survey. One likely reason for this difference is that young people go out more in their evening leisure time than older people who have more family commitments. Older drivers may also not like driving at night because of the lower visibility.

To summarise then, drivers of heavy vehicles tended to be older and more experienced than drivers of light vehicles, particularly those driving after dark. The most striking difference between the four groups of drivers was the high proportion of young drivers with few years experience in the night-time light vehicle sample.

The ages of the passengers were fairly evenly spread through the age groups: (21% were aged 18 to 24) but there were more elderly people than in the drivers samples (13% were aged 60 or more).

2.5 Sex of informants

It is a well known fact that more men than women are licenced to drive a motor vehicle. An earlier survey¹ showed that three fifths of all men over 16 years old held a full driving licence compared with only a fifth of women. The magnitude of this difference was similar within all age groups indicating little, if any, future change in the proportion of licence holders who are men: at present nearly three quarters of them are. Driving heavy vehicles must be even more the exclusive province of men.

Of all the heavy vehicle drivers interviewed in the present survey on the M6 motorway only one was a woman, and less than a tenth of the light vehicle drivers were women. In contrast two thirds of the passenger sample were women.

2.6 Frequency of driving on the experimental stretch of motorway

Drivers and passengers were asked at the beginning of their interview, "about how often have you driven/travelled on this stretch of M6 motorway this year, that is since January 1st?" The answers are given in Table 9. As can be seen, whether drivers were sampled during the day or at night made no difference to their answers here. But drivers of heavy vehicles drove on the experimental stretch much more often than light vehicle drivers. Nearly a fifth of them

¹ E.J. Jenkins, *op. cit.*

Table 9 Frequency of journeys in light and dark on the experimental stretch of motorway since January 1st 1974

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Frequency	%	%	%	%	%
5 or more times a week	1	5	17	4	20
2-4 times a week	3	12	52	11	54
once a week	1	8	11	8	6
less than once a week but more than once a month	5	13	6	17	10
once a month	5	8	3	8	2
less than once a month but more than once a year	55	39	9	40	6
once this year	30	15	2	12	2
<i>Number of informants (=100%)</i>	514	777	464	978	325

drove there five or more times a week, indicating that it was part of a daily work journey. Only one in 20 of the light vehicle drivers drove past the fence at least five times a week.

More than half the heavy vehicle drivers drove on that part of the M6 between two and four times a week. So in all nearly four fifths of them drove past the anti-dazzle fence at least once a week. Only a quarter of the light vehicle drivers were there that frequently, whereas for over half of them it was either the only time they had driven on the experimental stretch or they had been there less than ten times during the ten months that the fence had been up. Passengers were even less frequent visitors to the motorway; 30% had travelled there only once during the year, another 55% between one and nine times.

Drivers were asked a similar question about how often they drove on the experimental stretch of M6 in the dark. Passengers were not asked this question since they were only asked questions about the daytime appearance of the fence. The frequency with which drivers drove there in the dark is shown at Table 10.

Not surprisingly those drivers sampled at night were overall more frequent users of the M6 after dark. A third of the daytime light vehicle drivers and a fifth of the heavy vehicle drivers had never driven there in the dark. Again heavy vehicle drivers used the motorway in the dark more than light vehicle drivers did. Of those interviewed at night, 56% of the heavy vehicle drivers used the experimental stretch of motorway at least once a week after dark, compared with 13% of the light vehicle drivers.

Table 10 Frequency of night driving on the experimental stretch of motorway since January 1st 1974.

Frequency	Daytime		Night-time	
	Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%
5 or more times a week	2	4	2	11
2-4 times a week	6	24	5	29
once a week	4	15	6	16
less than once a week but more than once a month	10	9	12	15
once a month	5	4	8	7
less than once a month but more than once a year	27	19	43	13
once this year	11	3	23	8
(unknown how often)	1	*	1	1
never	34	21	-	-
<i>Number of informants (=100%)</i>	<i>777</i>	<i>464</i>	<i>976</i>	<i>325</i>

2.7 Summary

The last chapter was an explanation of the aims and methods of the survey. This chapter has introduced the people who were interviewed and whose views on the anti-dazzle fence make up the rest of the report. Some of the characteristics of informants described here will be used to explain and expand differences in attitudes held by the various groups of drivers and passengers.

The most important thing to have emerged from this chapter is the frequency of driving on the experimental stretch of motorway. Although heavy vehicle drivers made up only just over a third of the drivers in the survey, they drove past the anti-dazzle fence much more often than the drivers of light vehicles who formed the majority of people interviewed. This will have to be considered later in the report in terms of the implications for the weight to be attached to the views of different groups of drivers. However we now go on to look at just how many travellers had actually noticed the fence at all.

3 Knowledge of the fence

The stretch of fence that has been set up on the M6 motorway consists of green plastic vanes each measuring 87cm x 22cm (34ins x 9ins), fixed at an angle of about 70° to a rail mounted above an ordinary type of crash barrier (see Figure 1). The vanes are about one metre apart (39ins) and the whole fence is about 1.75 metres high, which in theory provides protection from dazzle for 98% of vehicles.

The first photograph of the anti-dazzle fence shown in Figure 1 is a general view of the fence taken from the hard shoulder. It gives a very good impression of the view drivers and passengers have of the fence when travelling along the motorway. Looking at this photograph it may seem hard to believe that not everybody on the motorway is aware that there is something unusual about the barrier in the central reservation. However, personal experience and preliminary interviews with travellers at the service area on the motorway, confirmed that a sizeable proportion of people do not notice the anti-dazzle fence.

3.1 How many people noticed the fence?

It was important to establish near the beginning of the interview whether or not informants had in fact noticed the fence. There were two reasons for this. One was that many of the questions we wanted to ask people were specifically about the fence and they would have been meaningless if the driver or passenger had not noticed it. The second reason was that whether someone was aware of the fence, was in itself an important finding, especially in relation to the question of how far the fence was seen as detrimental to the appearance of the motorway and its setting.

Whether or not passengers had noticed the fence was elicited in two stages. First they were asked whether they had noticed anything about the last five or six mile stretch of motorway which made it different from other stretches of motorway. If they did not mention the fence spontaneously at this point they were told that the difference was the extra fence on top of the crash barrier, and then asked whether this was something they had noticed or not. The same procedure was carried out for drivers, except they had an extra opportunity to mention the fence spontaneously in answer to the preceding questions about the reasons for differences in the amount of dazzle on the experimental stretch of M6. Table 11 shows the proportions of informants who responded to these two stages and the total proportions of the different groups of drivers and passengers who had noticed the anti-dazzle fence.

The first thing to note is the difference in awareness between passengers and drivers. Only two fifths of the passengers interviewed had noticed the anti-dazzle fence at all. More than two fifths of the drivers mentioned the fence spontaneously and did not need to be asked about it specifically. Altogether, between two thirds and three quarters of the drivers had noticed the fence.

Table 11 Proportions of drivers and passengers who had noticed the anti-dazzle fence

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Proportion who:	%	%	%	%	%
mentioned the fence spontaneously	9	42	42	47	45
said they had noticed fence when asked specifically about it	33	26	34	20	27
Therefore total who had:					
noticed fence	42	68	76	67	72
<u>not</u> noticed fence	58	32	24	33	28
<i>Number of informants (=100%)</i>	<i>518</i>	<i>777</i>	<i>464</i>	<i>976</i>	<i>325</i>

Also of interest is the variation between the four groups of drivers. There were no significant differences between the daytime and night-time samples in the proportion of drivers who had noticed the fence and the differences between drivers of light and heavy vehicles were small. Two thirds of light vehicle drivers were aware of the fence; around three quarters of the heavy vehicle drivers were. Although for the night-time sample this difference could have occurred by chance, the significant difference for the daytime sample suggests that it was a real one.

3.2 Purpose of the fence

In finding out whether drivers and passengers had noticed the fence, the questions used did not disclose the purpose of the fence. Those who reported having noticed it were then asked what they thought it was for. A high proportion of the drivers who had noticed the fence knew that it had an anti-dazzle purpose. Fewer of the passengers realised this. Of passengers who noticed it 57% knew what it was for compared with 87% of the daytime drivers and 91% of the night-time drivers who had noticed it.

Many of the people who had noticed the fence but did not know it was an anti-dazzle fence thought the vanes on top of the crash barrier were an additional means of preventing crashed vehicles from reaching the other carriageway. Some of the people who knew about the anti-dazzle function mentioned this as well. The difference between daytime and night-time drivers although small, is unlikely to have occurred by chance. This suggests that drivers are more likely to become aware of the anti-dazzle properties of the fence when driving in the dark than when driving in daylight which is hardly surprising. As has already been shown in the previous chapter, nearly a third of those drivers interviewed during the daytime had never been on the experimental stretch of motorway in the dark; so this would explain the daytime drivers lower level of knowledge about the fence.

Table 12 Proportion of informants who had noticed the fence and knew its purpose

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Proportion who had:	%	%	%	%	%
noticed the fence and knew its purpose	24	58	67	61	66
noticed the fence but did <u>not</u> know its purpose	18	10	9	6	6
<u>not</u> noticed the fence at all	58	32	24	33	28
<i>Number of informants (=100%)</i>	<i>518</i>	<i>777</i>	<i>464</i>	<i>978</i>	<i>325</i>

Table 12 shows for all the people interviewed in the survey, the proportions who had a) noticed the anti-dazzle fence and knew its purpose, b) noticed the fence but did not know what it was for and c) not noticed the fence at all.

It can be seen that only a quarter of the passengers and less than two thirds of the drivers were fully aware of the existence and purpose of the experimental fence.

3.3 Frequency of driving on the M6

The last chapter showed the frequency with which passengers and drivers in the survey had travelled past the anti-dazzle fence in the ten month period that it had been on the M6 motorway. In particular it highlighted the considerable differences between drivers of heavy vehicles and those of light vehicles; the former having travelled on the experimental stretch of motorway much more often than light vehicle drivers.

Table 13 Proportions of drivers and passengers who had travelled on the motorway a different number of times who had noticed the anti-dazzle fence

		Proportion who had noticed the fence								
		Passengers	Daytime				Night-time			
			Light vehicle drivers	Heavy vehicle drivers		Light vehicle drivers	Heavy vehicle drivers			
Frequency of driving on M6		%	%	%	%	%	%	%	%	
5 or more times a week	68 22	22	92	37	82	77	90	39	89	64
2-4 times a week			88	94	81	240	82	104	73	177
once a week			77	60	68	53	83	76	89	18
less than once a week but more than once a month	62 53	53	74	102	72 42	42	78	170	60 40	40
once a month			67	61			71	76		
less than once a month but more than once a year	39 285		63	305	52 52	52	61	395	35 26	26
once this year	36 154		47	118			38	116		

The numbers in italics refer to the number of informants on which percentages are based (=100%)

Having established that travellers on the motorway did not necessarily notice the presence of the anti-dazzle vanes on top of the crash barrier, the next question was how many times do they have to pass the fence before they do notice it? Table 13 shows clearly the relationship between frequency of travel and awareness of the fence for all groups of drivers and the passengers. The more frequently people had travelled on the motorway the more likely they were to have noticed the fence. This trend existed for each of the five groups of informants.

It seems, looking at the bottom row of Table 13, that between a third and a half of the travellers noticed the fence on their first journey on the experimental stretch of motorway. The drivers of light vehicles were more likely to have noticed the fence on their first journey than were passengers. The numbers of heavy vehicle drivers who had only been on the motorway once were too small for comparisons to be made with them.

By the time people had driven on the experimental stretch more than once but less than ten times during the ten months that the fence had been up, three fifths of light vehicle drivers and two fifths of passengers had become aware of the fence. These proportions continued to increase for each successive frequency of travel with around nine tenths of drivers who travelled on the experimental stretch five or

Table 14 Proportions of drivers who had driven on the motorway in the dark a different number of times who had noticed the anti-dazzle fence

Frequency of driving on M6 in the dark	Proportion who had noticed the fence							
	Daytime				Night-time			
	Light vehicle drivers		Heavy vehicle drivers		Light vehicle drivers		Heavy vehicle drivers	
	%		%		%		%	
5 or more times a week	94	61	79	131	84	64	84	37
2-4 times a week							80	96
once a week	83	29	79	70	79	63	69	52
less than once a week but more than once a month	78	77	80	61	81	118	77	48
once a month	79	42			80	80	55	22
less than once a month but more than once a year	69	214	76	104	68	415	68	41
once this year	58	85			44	227	44	25
never (since 1.1.74)	57	263	66	97	-	-	-	-

The numbers in italics refer to the numbers of informants on which percentages are based (=100%)

more times a week having noticed the fence. Two thirds of the passengers who were there at least once a week had noticed it.

Earlier in this chapter it was noted that more drivers of heavy vehicles were aware of the fence than drivers of light vehicles. It would seem that this small difference can be accounted for by the frequency with which these groups of drivers passed the anti-dazzle fence. Comparing drivers with similar experience of the fence at Table 13, suggests that if anything, light vehicle drivers were more aware of the fence than heavy vehicle drivers.

The journeys that drivers had made in the dark are of course included in the total frequency of driving discussed above and in Table 13. But Table 14 examines the relationship between the number of journeys made after dark and whether drivers had noticed the fence. It shows a similar pattern to that for total journeys.

3.4 Daytime and darkness

Whether or not drivers notice the presence of the anti-dazzle fence on the motorway could be expected to vary according to whether it is light or dark when they see it. The visual effect of the fence at these two times of the day is quite different. In the daytime the fence can be seen as tall green vanes standing on top of the central reservation crash barrier. At night however, it is more noticeable by the disappearance of oncoming headlights as they approach, rather than by the fence itself.

Whether or not this makes a difference to the number of drivers who noticed the fence can be examined by taking those drivers who had driven on the experimental stretch of M6 only once, and comparing those interviewed during the day with those interviewed in the dark. (See bottom row of Table 13). Of these daytime light vehicle drivers 47% had noticed the fence on their first journey; of those interviewed at night 38% had noticed it. This is not a significant difference and suggests that similar proportions of drivers notice the fence on their first journey regardless of light conditions. (There were not enough heavy vehicle drivers to allow comparison.)

However, it has been suggested in section 3.2 that the time of day does make a difference to whether or not drivers know the purpose of the fence; that if they first experience it in the dark they are more aware that it reduces oncoming headlight dazzle. This hypothesis can be tested by comparing the knowledge of the daytime and night-time drivers who had noticed the fence on their first journey on the experimental stretch. Although the numbers involved are small the observed difference is large and is unlikely to have occurred by chance. Of the 60 daytime drivers (heavy and light) who had noticed the fence on their first journey 65% knew its purpose, whereas of the 45 night-time drivers 85% knew that it was an anti-dazzle fence.

3.5 Direction of travel

Corley service area, where the interviewing was carried out, was conveniently placed almost in the centre of the experimental stretch of motorway. Thus people entering the service area, although coming from different directions, had experienced similar lengths of the anti-dazzle fence. But no two stretches can ever be exactly the same in terms of bends and hills and other factors dependant on the geography of the area. In addition it is possible that the part of the motorway before the experimental stretch could influence people's experience of the anti-dazzle fence in the same way that conditions on the actual fence stretch could.

In fact the experience of drivers approaching the service area from the north and south was different. Those coming from the north out of Birmingham drove through several miles of urban motorway which were lit by overhead lighting. They then went through a short unlit stretch with road works going on before reaching the experimental stretch. This experimental section on the north side of the service area (southbound) is hilly and has one very large bend in it.

In comparison the experimental stretch that northbound drivers experienced before entering the service area was a much more even stretch of motorway, preceded by miles of unlit road passing through countryside.

In spite of all these differences however, there was no evidence that direction of travel was systematically related to awareness and knowledge of the fence.

For all groups of informants except the daytime sample of light vehicle drivers there was no difference between the proportions coming from the south and north who had noticed the fence. The daytime light vehicle drivers were an exception to this: 72% of the northbound drivers had noticed the fence compared with only 64% of the southbound drivers.

3.6 Age and sex

The informant's age on the whole made very little difference to their knowledge of the existence and purpose of the fence. Of people sampled during the daytime there were no differences between drivers of different ages but passengers aged 60 or more were less likely than those younger ones to have noticed the fence. Just over a quarter of the older passengers had noticed it compared with nearly half the other passengers. Of those passengers who had noticed the fence those aged less than 40 were more knowledgeable about it than older passengers.

Among the night drivers there was a tendency in both the light and heavy vehicle samples for drivers in the youngest and oldest age groups, under 25 and over 50, not to have noticed the fence. Having noticed the fence however, drivers of different ages were equally likely to know what it was for.

As already explained in Chapter 2 women drivers did not drive heavy vehicles so they only appear for comparison with men in the light vehicle driver and passenger samples. In all cases women were less likely to have noticed the fence than were men. Having noticed it, they were also less likely to know its purpose. Women drove on the experimental stretch of motorway much less often than men which accounts at least partly for their lack of awareness of the fence and their subsequent knowledge of what it was for. However, there was still a difference between the sexes when people with similar experience of the fence were compared.

3.7 Summary

The data presented in this chapter have established frequency of travel on the experimental stretch of motorway as a very important factor in determining whether or not people notice the anti-dazzle fence. It either fully, or at least partly, accounts for observed differences in awareness and knowledge of the fence between heavy and light vehicle drivers and between drivers and passengers of different sexes.

The rather different conditions experienced by people travelling in opposite directions on the experimental stretch did not generally appear to be related to their awareness of the fence. Neither did whether it was light or dark at

the time of their interview. But it does seem that drivers were more likely to become aware of the purpose of the fence when driving in the dark than when driving in daylight. For the whole sample of drivers these kinds of differences, which might have been observed after a driver's first ever journey on the experimental stretch of motorway, have been obscured because the majority of drivers have experience of driving in both directions on the M6 and in both daytime and dark conditions.

However, the data suggest that between a third and a half of all travellers on the motorway notice the anti-dazzle fence on their first journey. This proportion increases with the frequency of travel so that in the survey two thirds of the passengers and about nine tenths of the drivers who pass the fence five or more times a week reported that they had noticed the anti-dazzle fence. Even among these daily travellers on the motorway there was a small proportion who denied having noticed the fence.

Overall then, two fifths of the passengers and between two thirds and three quarters of all the drivers we interviewed had noticed the anti-dazzle fence. Fewer, a quarter of the passengers and two thirds of all drivers, were aware of its true purpose.

4 The appearance of the fence

Most if not all technical innovations, whether they are electricity pylons, aeroplanes or safety measures on motorways can potentially damage our environment. Pollutants like noise and chemical effluents can cause disturbance and disease. Things which are ugly and inappropriately positioned may not cause damage in this way but they can impair the visual quality of their surroundings as well as being unattractive in themselves. This chapter reports on an attempt to evaluate the anti-dazzle fence from this point of view.

Increasingly the general public comment on plans which affect the environment in any way. The gathering of public opinion about a 12 mile stretch of anti-dazzle fence in the middle of a long motorway is not very easy to organise and a survey of drivers and passengers on the motorway was felt to be the best method. Even so, the survey had to be restricted to those travellers who stopped at the service station. An additional limitation was the difficulty of framing questions about the visual impact of the fence on the motorway.

However four main areas of the problem were identified and explored. The first one, whether people had even noticed the fence, has been discussed in detail in the previous chapter but will obviously arise in this chapter in relation to the opinions of those people who had noticed the fence. Secondly, travellers were asked whether the fence affected their view of the countryside or not. They were also asked to compare the appearance of the fence with other safety devices commonly placed in the central reservation. Finally, informants were asked to assess the overall appearance of the fence by choosing from four answers ranging from "very attractive" to "ugly".

Preliminary enquiries had shown that a substantial minority of people said they were not concerned with this aspect of the fence in reply to questions about appearance. The possibility of answering questions in this way was not included as part of the question as the other choices of answers were, so where this neutral view arose, it did so spontaneously.

4.1 The surrounding countryside

The first question that those people who had noticed the anti-dazzle fence were asked on the topic of appearance was, "do you think that the fence affects your view of the surrounding countryside or not?" If the answer was "yes" they were then asked how much this bothered them. The answers to this set of questions are given in Table 15.

This table is based on the total number of people interviewed so that the views of those who noticed the fence are seen in perspective with the sizeable minority who did not notice it at all.

Table 15 Passengers' and drivers' attitudes towards the anti-dazzle fence in terms of how much it affected their view of the surrounding countryside

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%	%
yes - affects view and bothered by this	1	3	*	3	1
yes - affects view but not bothered	6	8	2	6	1
no - does not affect view	28	36	53	27	46
not concerned with view	7	21	21	26	20
not noticed fence at all	58	32	24	33	28
noticed fence but not driven there in daylight†	-	-	-	5	4
Number of informants (=100%)	518	774	464	966	323

† The night-time drivers who had never driven on the experimental stretch of motorway in the daytime were not asked questions about the appearance of the fence.

As has been pointed out previously the drivers of heavy vehicles sat higher up off the road than did drivers and passengers in light vehicles. This factor is probably important in explaining the difference shown in the table between heavy vehicle drivers and the others. Only two per cent of all heavy vehicle drivers said that the anti-dazzle fence affected their view of the surrounding countryside; a tenth of the light vehicle drivers, and a similar proportion of the passengers reported that the fence affected their view. This similarity between the drivers and passengers of light vehicles was a little surprising given that passengers have more opportunity to look at the surrounding countryside than drivers do. It suggests that passengers tend to look at the view to their left which of course is not at all obscured by the anti-dazzle fence.

One way however in which the passengers differed from the drivers was in the proportion who said spontaneously that they were not concerned with the view of the surrounding

countryside. Passengers were much less likely to say this than were drivers, less than a tenth did compared to just over a fifth of all drivers. Rather more surprising perhaps was the lack of difference between the heavy and light vehicle drivers in the proportions who said they were not concerned with the view. It might have been expected that the drivers of heavy vehicles, driving for a living, would have been more likely to have answered in this way.

In summary then, Table 15 shows that in relation to the proportion of people who had not noticed the fence, or who were not concerned with the view of the surrounding countryside or whose view was not affected by the fence, those affected by it formed a very small minority, particularly of heavy vehicle drivers. Even fewer reported being bothered by the fact that the anti-dazzle fence affected their view of the surrounding countryside.

4.2 Preferences for the central reservation

Crash barriers and lamp-posts are both potentially unattractive safety measures which when installed on motorways are usually placed in the central reservation. It was felt therefore that they were appropriate objects to ask people to compare the anti-dazzle fence with, from the point of view of appearance.

All informants who had noticed the fence were posed two questions which asked them which of two things, one being the anti-dazzle fence, they found more attractive. In the first, of these questions asking about ordinary crash barriers, the fence was placed second in the question whereas in the question about lamp-posts the fence was mentioned first. But in answer to both questions there was a distinct preference expressed for the anti-dazzle fence. This is shown at Tables 16 and 17.

Table 16 Passengers' and drivers' preferences from the point of view of appearance, when asked to choose between the usual crash barrier and the crash barrier with the anti-dazzle fence.

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%	%
prefer usual crash barrier	33	22	8	20	13
prefer barrier plus anti-dazzle fence	36	44	48	41	54
don't mind/can't choose	31	34	44	39	33
<i>Number of informants who had noticed fence (=100%)</i>	220	524	349	597	220

Considering first the choice between the usual crash barrier and one with an anti-dazzle fence on top, more than a third of the drivers and passengers who had noticed the fence said spontaneously that they did not have a particular preference. About half of the heavy vehicle drivers chose the barrier with fence, a tenth chose the barrier on its own. Light vehicle drivers were less enthusiastic than this about the anti-dazzle fence and correspondingly showed a greater preference for the ordinary crash barrier. Passengers appeared to be even less in favour of the fence than light vehicle drivers. A third of the passengers who had noticed the fence said they preferred the usual crash barrier, a fifth of light vehicle drivers gave this answer; about a tenth of the heavy vehicle drivers did. Nevertheless the positive attitudes towards the anti-dazzle fence were much greater than those expressed about the appearance of the ordinary crash barrier, especially among drivers.

Table 17 Passengers' and drivers' preferences from the point of view of appearance, when asked to choose between the anti-dazzle fence and lamp-posts on motorways.

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%	%
prefer fence	40	43	43	34	44
prefer lamp-posts	37	24	18	29	20
don't mind/can't choose	23	33	39	37	36
<i>Number of informants who had noticed fence (=100%)</i>	<i>220</i>	<i>524</i>	<i>348</i>	<i>595</i>	<i>221</i>

A similar pattern of answers emerged from the question about choice between the fence and lamp-posts. As can be seen from Table 17 there was little variation in the proportions of the groups of drivers and passengers who chose the fence. But, as before, there was a trend for passengers to express most preference for the alternative, in this case lamp-posts, and drivers of heavy vehicles the least.

4.3 Overall attractiveness

This chapter has shown so far that only a small minority of the travellers interviewed felt that the anti-dazzle fence affected their view of the surrounding countryside. When asked about the actual appearance of the fence itself it seemed that people on the whole preferred it to either ordinary crash barriers or lamp-posts. But this does not necessarily mean that they found the anti-dazzle fence pleasing to the eye. The last question that informants were asked about the fence was "would you say the fence is very attractive, reasonably attractive, unattractive or ugly?" Their answers are shown at Table 18 which is based on all the people who were interviewed.

Table 18 Passengers' and drivers' assessment of how attractive the anti-dazzle fence is.

	Passengers	Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Level of attractiveness	%	%	%	%	%
very attractive	*	1	1	1	1
reasonably attractive	24	36	50	31	43
unattractive	11	16	6	13	6
ugly	3	6	3	5	3
not concerned with looks	3	6	13	10	12
don't know	1	3	3	2	3
not noticed fence at all	58	32	24	33	28
noticed fence but not driven there in daylight†	-	-	-	5	4
<i>Number of informants (=100%)</i>	<i>518</i>	<i>775</i>	<i>462</i>	<i>966</i>	<i>323</i>

† See footnote to Table 15.

As can be seen only one in a hundred of those interviewed felt that the fence was very attractive. And about one in twenty thought it ugly. The most common answer was that the fence was thought to be reasonably attractive. A quarter of all passengers felt this, around a third of the light vehicle drivers and nearly half of the heavy vehicle drivers agreed.

The table shows clearly that heavy vehicle drivers found the fence more attractive to look at than did light vehicle drivers and passengers. Less than a tenth of the heavy vehicle drivers said the fence was unattractive or ugly compared with about twice as many of the drivers of light vehicles who said this.

Thus the answers to the four questions we asked travellers about the appearance of the fence all support the general finding that few people express really negative attitudes towards the fence, but drivers of heavy vehicles appear to like it more than travellers in light vehicles. Table 19 summarises this with some of the answers to these questions.

The table presents the views of only those travellers who had noticed the fence and were actually asked the four questions on the appearance topic. So as well as providing a summary it gives an indication of the views of motorway travellers if and when they all became aware of the anti-

dazzle fence. Chapter 3 showed that the most important factor determining whether people had noticed the fence was the number of times they had passed it. The next section, examines the effect of this on people's attitudes towards the appearance of the fence.

Table 19 Summary of the views on the appearance of the fence of those passengers and drivers who had noticed the fence.

Proportions of travellers with particular views					
Passengers		Daytime		Night-time	
		Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Proportion who thought:	%	%	%	%	%
the fence adversely affects view of surrounding countryside	17	17	2	15	3
the anti-dazzle fence more attractive than ordinary crash barriers	36	44	48	41	54
the anti-dazzle fence more attractive than lamp-posts	40	43	43	34	44
the anti-dazzle fence very, or reasonably attractive	58	55	67	51	65
<i>Number of travellers who had noticed the fence (=100%)</i>	220	525	349	597	221

4.4 Frequency of driving past the fence

A comparison of the proportions of all travellers who say they find the anti-dazzle fence either very or reasonably attractive in Table 18 with the proportions of people who had noticed the fence in Table 19 shows how, if everyone had noticed the fence, the level of positive affirmation of its attractiveness might rise. More than half the people interviewed who were travelling in light vehicles and had noticed the fence thought it very or reasonably attractive, more, about two thirds of the heavy vehicle drivers thought this.

Restricting comparison to just those who had noticed the fence shows that there was still a tendency for heavy vehicle drivers to express more favourable views than those in light vehicles about the appearance of the fence itself. Was this because they drove past it more often and perhaps got used to it?

Chapter 2 showed that heavy vehicle drivers travelled much more frequently past the anti-dazzle fence than the other informants. About half of them went past at least once a week, leaving very small numbers of drivers who had experienced the fence only a few times. Thus it has not been possible to establish whether or not there was a trend for increasing experience to produce more favourable attitudes towards the appearance of the fence. However, when the views of passengers and light vehicle drivers with different experience of the fence are compared, there is no evidence that the weekly travellers like it better than those who have seen it only a few times. So, frequency of driving past the anti-dazzle fence does not appear to be related to the expression of more favourable views about the fence's actual appearance.

There was though, a suggestion that greater experience of the fence led fewer people in light vehicles to report that the fence affected their view of the surrounding countryside. The trend was particularly strong for passengers and drivers of light vehicles who were interviewed in the daytime. Of those that had noticed the fence and had driven past it only once, three tenths felt that it had affected their view of the countryside. This proportion fell to a tenth of the drivers who drove past weekly and even fewer of the passengers.

This may partly explain why drivers of heavy vehicles reported their view of the surrounding countryside to be less affected by the fence than other travellers.

4.5 Lane use

It was possible that another reason for the differences between heavy and light vehicle drivers was their position on the road. Lorry drivers are not allowed to use the outside fast lane on three lane motorways like the experimental stretch. They spend much of their time in the inside slow lane and the middle lane which they use for overtaking. Light vehicle drivers on the other hand are free to use all the lanes including the outside lane which is nearest to the anti-dazzle fence. This close proximity to the fence might be expected to affect their view of the countryside more and also make the fence appear less attractive. However, those drivers of light vehicles who said they usually drove in the fast lane were not less likely than those who usually drove in the middle and slow lanes to express favourable views about the fence. There was a tendency however for them to say they were not concerned with the view or the looks of the fence. This indifference was probably related to the speed with which they drove and the fact that they were concentrating on overtaking. It seems therefore unlikely that the use of different lanes by drivers of heavy and light vehicles accounts for the difference in their answers to these questions about the appearance of the fence.

4.6 Summary

In comparison with other safety devices that are seen in the central reservations of motorways, the anti-dazzle fence was rated quite highly from the appearance point of view. More people expressed a preference for the fence than for the two alternative choices they were given: an ordinary crash barrier and lamp-posts.

When asked to rate the anti-dazzle fence on a four point attractiveness scale, between a quarter and a half of all the informants thought the fence "reasonably attractive" although only one in a hundred rated it "very attractive". Up to a fifth of the different groups of informants thought the fence was "unattractive" or "ugly". However, the remaining substantial minority of drivers and majority of passengers either said they were not concerned with appearance or had not noticed the fence at all.

Passing the anti-dazzle fence frequently did not seem to alter peoples' attitudes towards the appearance of the fence itself. People who travelled on the motorway at least once a week were not more likely to prefer it to lamp-posts or ordinary crash barriers nor to rate it as more attractive than people who had only seen the fence a few times.

However, the more people drove past the fence the less likely it seemed they were to say that the fence affected their view of the surrounding countryside. Perhaps having got used to its presence on the motorway travellers no longer look at it or try to look across it but concentrate their gaze on the clear view to their left.

Frequency of travelling past the fence was one factor that might explain the more favourable attitudes of heavy vehicle drivers towards the way in which the fence affected the view. Only two per cent of heavy vehicle drivers said the fence did affect their view of the surrounding countryside; more - about one in ten of the people in light vehicles said this. Heavy vehicle drivers had of course more experience of the experimental stretch of motorway than the other informants.

Frequency of driving did not account for all the differences however and the use of different lanes did not appear to be related to different attitudes towards the appearance aspect of the fence. There were no systematic differences between men and women light vehicle drivers or passengers which would help to explain why the exclusively male heavy vehicle drivers were generally more positive about this aspect of the fence, although women were more likely than men to say that the fence affected their view.

Finally then we can recall from the previous chapter that three fifths of the passengers and between a quarter and a third of all the drivers interviewed had not even noticed the anti-dazzle fence. More, up to a third spontaneously said they were not concerned with the view, with appearance or could not choose between alternatives. Of those left few expressed negative attitudes towards the fence. At all four questions however the drivers of heavy vehicles tended to be more positive about the appearance of the fence and its effect on the view than were people in light vehicles. Factors that we did not measure in the survey must account for some of this difference. The two most important are likely to be the height of lorry and coach drivers' positions in relation to the fence and the fact that they all drive for a living and therefore see the motorway most importantly as a means towards that end.

5 Night driving, dazzle and the fence

So far the report has concentrated on travellers' awareness of the fence and their attitudes towards its appearance. It now goes on to look at what the drivers we interviewed thought about the anti-dazzle function of the fence. Passengers were not asked questions about night driving.

5.1 The problem of dazzle

Being dazzled by the headlights of oncoming vehicles when driving in the dark is a common experience. In the survey of night driving¹ three quarters of those who drove in the dark reported that they were sometimes dazzled in this way when driving on unlit roads.

Unlit roads of course present the greatest problem because motorists have to use their main beam headlights to see where they are going. Unless they dip their lights the moment they see another vehicle approaching there is a chance that they will cause the other driver to be affected by the glare. In addition, many unlit roads are just two or three lanes wide and even dipped headlights can create dazzle because of the lack of space between lanes. On dual carriageway roads there is often a space in the centre of the road which in itself helps to prevent the headlight beams of cars approaching one another from converging. On motorways there is always a central reservation at least several feet wide, and although most of them are unlit it is to be expected that the problem of headlight dazzle is less on motorways than on ordinary unlit roads.

In the present survey drivers were asked whether when driving on motorways in the dark they found that headlights coming towards them, disturbed them "a lot", "to some extent" or "not at all". More than half of the drivers were disturbed by headlights on motorways as can be seen from Table 20.

As expected, the problem of oncoming dazzle on motorways as reported in the present survey was less than the problem of dazzle on ordinary unlit roads measured in the night driving survey. Nevertheless the level of disturbance was surprisingly high. More than a tenth of all drivers said they were disturbed "a lot" by oncoming headlights and between a third and a half reported being disturbed "to some extent" by them.

¹ E J Jenkins, *Night driving*, (in preparation) Social Survey Division, Office of Population Censuses and Surveys.

Table 20 Proportions of drivers who were disturbed to a different extent by oncoming headlights on motorways

	Daytime		Night-time	
	Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%
Disturbed by headlights				
a lot	17	11	13	13
to some extent	46	36	47	37
not at all	37	53	40	50
Number of drivers (=100%)	761	451	975	323

Note In addition to the small number of inadequate answers 28 daytime drivers who never drove on motorways in the dark have been excluded from the table.

Drivers of heavy vehicles reported being less affected by headlights than drivers of light vehicles; half of them said they were not affected at all compared with three fifths of the light vehicle drivers. This difference can probably be explained by the fact that the heavy vehicle driver is higher off the road than other drivers and is more likely to drive in the inside slow lane where he is farthest away from the oncoming traffic.

- 5.2 Awareness of oncoming headlights Before mentioning the anti-dazzle fence in the interview drivers were asked how oncoming headlights on the experimental stretch of M6 compared with headlights on other stretches of motorway - were they "more" or "less" aware of

Table 21 Proportions of drivers who were "more" or "less" aware of oncoming headlights on the experimental stretch than on other stretches of motorway

	Daytime		Night-time	
	Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%
Awareness of oncoming headlights				
more aware	5	5	5	6
less aware	41	33	45	36
same	54	62	50	58
Number of drivers (=100%)	532	390	963	321

them, or was it about the same as on other stretches? Their answers are shown at Table 21. More than half the drivers felt that their awareness of oncoming headlights was about the same on the stretch of motorway past the service area as on other stretches of motorway. However over a third of the heavy vehicle drivers felt that they were less aware of oncoming headlights; more, over two fifths of the light vehicle drivers said this. Only one in 20 of all drivers said they were more aware of oncoming headlights. These small differences between drivers of heavy and light vehicles were in accordance with the different extent to which the drivers were disturbed by headlights generally.

Virtually all the reasons that drivers gave as to why they were less aware of oncoming headlights were related to the presence of the anti-dazzle fence. In contrast the reasons they gave for being more aware of headlights were mostly to do with factors like the absence of lighting, hills and bends, and heavy traffic.

5.3 Effective-
ness of
the fence

This question about relative awareness of oncoming headlights on the experimental stretch has already given an indication of the effectiveness of the anti-dazzle fence. Almost two fifths of drivers felt that they were less aware of headlights there. However the interview went on to ask drivers a more specific question about the effectiveness of the fence, and because it was specific it could only be asked of those drivers who had noticed the fence. These drivers were asked to estimate how much of the dazzle the fence cut out.

Table 22 Drivers assessment of the amount of dazzle cut out by the anti-dazzle fence

	Daytime		Night-time	
	Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%
Amount of dazzle cut out				
all	28	25	32	29
most	58	55	55	57
some	8	13	9	7
none	1	2	1	3
don't know	5	5	3	4
<i>Number of drivers who had noticed the fence (=100%)</i>	374	287	651	234

The first thing to notice at Table 22 is that all four groups of drivers answered in a very similar way. More than a quarter of them thought the fence cut out all the dazzle. More than a half thought it cut out most of it. Around a tenth of the drivers felt that only some of the dazzle was cut out by the fence - a very small minority, between one and three per cent, thought that the fence did not cut out any dazzle at all.

These answers suggest that from a functional point of view the anti-dazzle fence was a considerable success. Nearly nine tenths of the drivers who were aware of the fence, three fifths of all drivers interviewed, estimated that it cut out all or most of the dazzle from oncoming headlights. The height of the fence was designed to be effective for all but 2% of drivers - those with very high driving positions. However there were fears that a much greater proportion of heavy vehicle drivers did not benefit from the fence. In the light of this survey however it would seem that these doubts were largely unfounded.

5.4 Ways to
improve the
anti-
dazzle
fence

Unless drivers felt that the anti-dazzle fence cut out all the dazzle from oncoming headlights, they were asked for their suggestions for improving this aspect of the fence. About two thirds of these drivers had no suggestions. The rest had a variety of ideas about how to make the fence better at cutting down dazzle. But two suggestions accounted for the great majority of ideas - that the fence should be made solid and that it should be made higher. Answers given by smaller numbers of drivers advised things like leaving smaller spaces between vanes, putting the vanes at an angle, extending the fence down to the ground and replacing it with bushes.

Although as we have seen there were no differences between the drivers of heavy and light vehicles in the extent to which they felt the fence cut out dazzle, their ideas about improvements were different. Heavy vehicle drivers were much more likely to suggest making the fence higher than were light vehicle drivers, who in turn were more likely to favour making it a solid barrier. So of those drivers who felt that the fence did not cut out all the dazzle, a quarter of the heavy vehicle drivers suggested additional height, and about a tenth of the light vehicle drivers suggested a solid anti-dazzle fence.

While it would in theory be possible to make anti-dazzle fences higher, there are reasons for not making them solid. Firstly if there was an accident which dislodged the barrier, a solid structure would be much more likely to cause damage and to block the road than plastic vanes. Secondly, again in the case of accidents, emergency service personnel would have great difficulty crossing the central reservation which they often have to do because a whole carriageway is blocked and the other carriageway is the only means of approaching the scene of the accident. They would also have difficulty actually seeing where the accident was from the other carriageway.

5.5 Familiarity with the anti-dazzle fence

It will be remembered that it was possible to ask only those drivers who had actually noticed the fence the specific question about its effectiveness. Chapter 3, which discussed awareness of the fence, found that familiarity with the experimental stretch of motorway was probably the most important factor in determining whether people noticed the fence or not. What effect does this have on drivers' assessment of the anti-dazzle properties of the fence?

Firstly then, we look at the answers to the questions that all drivers were asked - were they more aware or less aware of oncoming headlights on the experimental stretch? Drivers who had not noticed the fence were much less likely to say that they were less aware of oncoming headlights on the experimental stretch of motorway than those who had. Less than a fifth of the light vehicle drivers who had not noticed it said this compared with more than half of those who had noticed it. A similar difference existed for the heavy vehicle drivers.

So familiarity with the experimental stretch of motorway leads to noticing the fence which in turn is related to being less aware of oncoming headlights when driving in the dark. What we cannot show is which comes first - noticing the fence itself or being aware of its major effect - cutting out light from oncoming headlights.

The second evaluative question about the amount of dazzle cut out by the fence suggests that once a light vehicle driver had noticed the fence the more experience he had of it the more highly he rated its anti-dazzle properties. Of the light vehicle drivers interviewed during daylight who had only experienced the fence once in the dark, 16% thought the fence cut out all the dazzle. This proportion rose to 36% of those who drove there at least once a week.

The proportions for light vehicle drivers who were interviewed in the dark were very similar. Heavy vehicles did not show a trend, partly because the numbers of them who had driven on the motorway in the dark only a few times were small.

5.6 Other factors related to drivers' assessment of the amount of dazzle cut out by the fence

Since all but one of the heavy vehicle drivers interviewed were men it has only been possible to compare men and women drivers of light vehicles. Women were less likely to say that the fence cut out all the dazzle from oncoming headlights. The difference was a small one and can probably be accounted for by the different number of times drivers of different sexes had driven on the experimental stretch in the dark. Men had more experience of it than women.

Among both heavy and light vehicle drivers there was a tendency for those under 30 years of age and those aged 50 or more, to say that the fence cut out less dazzle than these "middle aged" drivers. This may be partly accounted for by their having less experience of the fence in the dark, although as Chapter 2 showed young light vehicle drivers drove more frequently on the motorway than older drivers.

Another explanation for this difference possibly lies in the interesting finding that, of drivers who thought the fence cut out all the dazzle, more were likely to be those who said they were not bothered by oncoming lights on motorways compared with the drivers who rated the fence as less effective. In other words the people who got most benefit from the fence tended to be those less likely to be bothered by dazzle on motorways generally.

Now both this and the night driving survey found that there was a tendency for the youngest and oldest drivers to be those most bothered by oncoming headlight dazzle - the younger ones possibly because of their shorter driving careers, the older ones because of physical changes due to age and the small amount of night driving done. This combination of differences would help explain why younger and older drivers found the fence less effective than those in the middle age range.

5.7 Summary

This chapter has shown that even on motorways more than half the drivers were disturbed to some extent by oncoming headlights, although they affected heavy vehicle drivers less than the drivers of light vehicles.

In response to a question about their comparative awareness of oncoming headlights on the experimental and other stretches of motorway, more than two fifths of the light vehicle drivers and more than a third of the heavy vehicle drivers said they were less aware of lights on the experimental stretch. Of those who had noticed the fence eight out of ten thought it cut out either all or most of the dazzle.

Table 23 Summary of drivers' views on the effectiveness of the fence for all who had driven on the experimental stretch in the dark

	Daytime		Night-time	
	Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
Amount of dazzle cut out	%	%	%	%
all	20	20	21	21
most	42	43	37	42
some	6	10	6	5
	72	74	70	72
not noticed the fence but less aware of oncoming headlights	4	1	6	3
not noticed the fence and more or equally aware				
cuts out none of the dazzle	28	26	30	28
don't know how much dazzle cut out				
Number of drivers who had driven in dark (=100%)	514	371	967	321

Table 23 summarises these two questions for all drivers who had driven on the experimental stretch of the M6. It shows that three tenths of them either had not noticed the fence and were not less aware of the headlights on the experimental stretch, or they had noticed it but did not think it cut out any dazzle or did not know whether it did. The remaining seven tenths of all drivers answered one or other of the questions in such a way that suggested they found the anti-dazzle fence effective at cutting out or reducing oncoming headlight glare.

This favourable evaluation of the anti-dazzle properties of the fence is added to by evidence from the light vehicle drivers that the more experience they had had of the fence in the dark, the more highly they rated its efficiency at reducing dazzle.

Finally and perhaps unexpectedly the fence seemed to be equally effective for all drivers, regardless of whether they were driving a heavy vehicle and were high above the road, or driving a light vehicle and were nearer the ground.

6 Effects of the fence on driving and road safety

The last chapter reported on the most important aspect of the anti-dazzle fence - whether or not drivers thought it actually cut out dazzle from oncoming headlights. We found that to a great extent they thought it did. But we were also interested in what drivers thought of the anti-dazzle fence as an alternative to lighting and as a safety device. This chapter is concerned with these questions and also with whether the presence of the anti-dazzle fence on the motorway had any effect on the way that people actually drove.

6.1 The fence and lighting

Lighting on motorways reduces the problem of headlight dazzle because it makes it completely unnecessary for drivers to use main beam headlights. Also, by lighting up the road it increases visibility generally. Lighting is however very expensive, this being the main reason for the Transport and Road Research Laboratory searching for effective and acceptable alternatives. The anti-dazzle fence costs about half as much to install, maintain and run as lighting, and according to drivers' reporting, seems to be effective at cutting down dazzle. It will of course need TRRL's evaluation of the accident rates to see if this results in their reduction.

Drivers in the survey found the fence effective but do they prefer the anti-dazzle fence to lighting for night driving? All drivers who had noticed the fence and driven on the experimental stretch of M6 at night were asked to choose between these two alternatives. There were no differences between the drivers of heavy and light vehicles. Nearly a third of the drivers chose the fence. Twice as many chose lighting. Fewer than a tenth had no particular preference. So, although the fence was only half as popular as lighting, which after all is a much more familiar safety measure, a sizeable proportion of drivers who had noticed the fence were positive in stating their preference for the anti-dazzle fence.

Those drivers who said they would prefer lighting were then told that it was twice as expensive to install and maintain as the fence, and ask whether they would still choose lighting for night driving. Faced with this piece of information the drivers of light vehicles were more likely to change their minds and choose the fence than were drivers of heavy vehicles.

Table 24 Proportions of drivers who had experienced the experimental stretch of M6 in the dark who would choose the fence and lighting for night driving.

	Daytime		Night-time	
	Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%
chose lighting regardless of cost	28	39	29	33
chose lighting initially but would choose fence if lighting twice as expensive	17	11	16	12
chose fence	25	24	19	23
no preference	3	3	3	4
not noticed fence at all	27	22	33	28
<i>Number of drivers (=100%)</i>	<i>510</i>	<i>366</i>	<i>966</i>	<i>324</i>

Table 24 summarises these two questions and shows that except for the heavy vehicle drivers interviewed in the daytime, all the groups of drivers ended up being more in favour of the anti-dazzle fence than of lighting. This preference was particularly expressed by the drivers of light vehicles. Taking into account all drivers who had experienced the experimental stretch of M6 in the dark (including those who had not noticed the anti-dazzle fence) well over a third said they would choose the fence in preference to lighting taking into account the difference in cost. A similar proportion of heavy vehicle drivers chose lighting in spite of the cost; rather fewer of the light vehicle drivers did.

6.2 The fence as a safety measure

It has been shown then that most drivers think the fence reduces dazzle from oncoming headlights and many would choose the fence in preference to lighting for driving at night. But it does not necessarily follow that drivers see the fence as a safety measure - they may just like it because it increases drivers' comfort. So drivers were asked whether they thought the anti-dazzle fence could make any difference to the number of accidents on the experimental stretch of M6, and if so whether there would be more accidents or less.

The great majority of drivers thought that the fence would result in fewer accidents. Light vehicle drivers were more optimistic than heavy vehicle drivers about this; three quarters of them thought there would be fewer accidents because of the fence compared with between 60% and 70% of the heavy vehicle drivers. Almost negligible numbers of drivers thought there would be more accidents because of the fence. The remaining quarter of drivers either thought the fence would not make any difference to the number of accidents, or they would not express an opinion. These answers suggest that most drivers do appreciate that the anti-dazzle fence has a safety value and is not there just for drivers' comfort.

Apart from the straightforward safety aspect of the fence, the Transport and Road Research Laboratory was concerned about possible side effects on driving behaviour. TRRL were carrying out observations on the M6, but it was also of interest to see if the drivers were themselves aware of any alterations in their behaviour in response to the anti-dazzle fence.

- 6.3 The fence and the use of headlights
- The anti-dazzle fence cuts out the dazzle from oncoming headlights and much of the time it also means that drivers are unaware of oncoming vehicles altogether when driving in the dark. It has been suggested that this leads to increased use of main beam headlights, either because drivers think that all the dazzle is cut out anyway or because they are not aware of oncoming traffic for whom they would normally dip their lights. If the fence cut out all the dazzle for all drivers this would not be a problem for oncoming traffic, but as we have seen in the previous chapter it is not completely effective. In addition the greater use of undipped headlights may increase the number of drivers who are dazzled by lights of vehicles behind them reflecting in their mirrors.

Table 25 Proportions of drivers who thought the fence made them more likely to use main beam headlights.

	Daytime		Night-time	
	Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%
Use of main beam headlights				
more likely	27	9	15	9
less likely	6	7	9	5
makes no difference	67	84	76	86
<i>Number of drivers who had noticed fence (=100%)</i>	<i>373</i>	<i>287</i>	<i>648</i>	<i>234</i>

Firstly then, how many drivers thought that the fence made them alter the extent to which they used main beam headlights? Table 25 shows that the majority of drivers felt that the fence made no difference to them in this respect. Between two thirds and three quarters of the light vehicle drivers and more than four fifths of the heavy vehicle drivers said they did not alter their use of headlights. However, a tenth of the heavy vehicle drivers and about twice as many of the light vehicle drivers said they were more likely to use main beam headlights on the stretch of M6 with the fence. When asked to explain why, the majority of these drivers stressed the increased seeing distance that resulted in using main beam headlights and said that providing there was no traffic

in front of them they used them. The existence of the fence meant that they did not have to bother to dip their lights, some drivers saying they tended to forget to dip.

In contrast, between five and nine per cent of the drivers thought that they were less likely to use their main beam headlights. In the main this was because they felt that visibility was better with the fence, they could see further and did not need their own headlights to counteract those of oncoming vehicles. Several drivers also mentioned that they did not need to flash their lights at other drivers to remind them to dip.

This question about the relative use of main beam headlights on the experimental stretch of motorway was only asked of those drivers who had noticed the fence. But it is likely that some of those who had not noticed the fence were also changing the way they used their headlights in response to conditions without being aware of what was creating the conditions.

This section has shown that a quarter or more of light vehicle drivers and one in seven heavy vehicle drivers say that they use their main beam headlights differently on the experimental stretch of motorway than on other stretches. Table 26 shows the outcome of this in terms of the proportions of drivers who reported being more aware or less aware of headlights behind them on the experimental stretch.

Table 26 Proportions of all drivers who were either more or less aware of following headlights on the experimental stretch.

	Daytime		Night-time	
	Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%
Awareness of following headlights				
more aware	7	6	10	12
less aware	3	3	5	4
same	90	91	85	84
<i>Number of drivers (=100%)</i>	<i>535</i>	<i>390</i>	<i>963</i>	<i>321</i>

As can be seen from the table, one in ten of the drivers interviewed after dark reported being more aware of headlights behind them, half as many, one in 20 were less aware of them. The proportions of drivers interviewed in the daytime who were more or less aware of following lights were slightly smaller. But since many of them had very little experience of the motorway after dark it is not surprising that they were less likely to report different conditions on the experimental stretch compared with drivers who had driven on it in the dark just before being interviewed.

Many of the drivers who said they used their main beam lights differently on the experimental stretch commented on the improved visibility there. Another possible outcome of this was that people tended to drive faster. This is discussed next.

6.4 The fence and driving speed

All drivers who had noticed the fence were asked whether they thought it made them drive faster or slower or whether it made no difference to their speed. The question was asked for both daytime and after dark driving. Very few drivers said they changed speed during the daytime because of the fence. Their answers about driving after dark are shown at Table 27.

Table 27 Proportions of drivers who thought the fence made them drive faster or slower in the dark

	Daytime		Night-time	
	Light vehicle drivers	Heavy vehicle drivers	Light vehicle drivers	Heavy vehicle drivers
	%	%	%	%
Proportion who thought the fence made them drive				
faster	12	2	11	2
slower	3	1	2	2
made no difference to their speed	85	97	87	96
<i>Number of drivers who had noticed the fence (=100%)</i>	370	287	648	234

Like changing main beam use, the drivers of heavy vehicles were less likely to alter their behaviour than light vehicle drivers. Less than one in 20 heavy vehicle drivers said they changed speed when driving after dark because of the fence. About half of these said they drove faster, and half said they drove more slowly. A similar proportion of light vehicle drivers, two or three per cent, said they drove more slowly but many more, over ten per cent, said the fence made them drive faster in the dark.

This was related to use of main beam headlights. Light vehicle drivers who said they were more likely to use main beam were three times as likely as those whose headlight habits did not change to say they drove faster.

Although the numbers are small, the data also suggest that those light vehicle drivers who found the fence most effective in terms of the amount of dazzle that it cut out, were more likely to drive faster than people whose claims for the fence were more modest. Although we cannot isolate

causal relationships here it seems likely that in reducing the hazard of oncoming dazzle, some drivers, particularly of light vehicles, were able to drive faster and so long as there was little traffic in front of them, to use main beam headlights without interruption to see where they were going.

6.5 The fence and the use of different lanes

If drivers feel able to drive faster on the motorway because of the fence it follows that they may be more likely to use the fast outside overtaking lane. But we were interested in talking to light vehicle drivers about their use of different lanes for another reason which involved asking about lane use during the day as well as after dark.

It had been suggested that some drivers may be less likely to use the outside fast lane, especially in daylight, because of a feeling of being too close to a solid barrier - barrier shyness. Drivers of heavy vehicles were not asked the questions about lane use because they are not allowed to use the outside lane.

Drivers reported no difference in the lanes they mainly used either in the dark or during daylight. Around 15% of drivers said they mainly used the slow lane, 60% the middle lane and 25% the fast overtaking lane. Having established the lane they used most, those drivers who used the middle or fast lane were asked for both daytime and night driving, whether the fence made them more or less likely to use the fast lane.

Let us first look at changes in daytime lane use to consider the question of barrier shyness. In fact only five per cent of those drivers who mostly drove in the middle or fast lanes said the fence affected which lane they used. Four per cent said they used the outside fast lane less and only one per cent said the fence made them more likely to use it. This suggests that perhaps a very small minority of drivers had a tendency to use the lane nearest the fence less than they would on a normal stretch of motorway. Taking all those drivers who had noticed the fence, regardless of which lane they usually used, three and a half per cent said they were less likely to use the outside lane because of the anti-dazzle fence. TRRL's own measurements of the position of traffic on the motorway may of course show changes in lane use that the drivers themselves were not aware of or did not admit. However any tendency for drivers on the experimental stretch to avoid the fast lane will be partly underestimated by direct observations because of those drivers who tend to make more use of the outside lane.

Returning to night driving behaviour we find as expected, that some drivers did think the fence made them more likely to use the fast lane. Of all drivers who had noticed the fence and driven on the experimental stretch of M6 in the dark six per cent said the fence made them more likely to use the fast lane. In addition about three per cent of the night drivers felt they were less likely to use the fast lane. This may again be a form of barrier shyness.

Unfortunately because of constraints on the length of the interview and the field work conditions it was not possible to ask drivers their reasons for all changes in behaviour. It is very likely that their reasons for using the fast lane more in the dark would have referred to the lack of dazzle from oncoming headlights and the resulting ability to drive faster. But it is much more difficult to infer their explanations of why they used the outside fast lane less. These data therefore only give an indication of the proportions of drivers who think they use the fast lane less because of the fence. They do not tell us why drivers behaved in this way - barrier shyness may be only one of the reasons.

6.6 Summary

This chapter has discussed the extent to which drivers were aware of the effect of the anti-dazzle fence on their night driving behaviour. The drivers of light vehicles were more likely to change certain aspects of their driving in response to the conditions created by the fence than were heavy vehicle drivers. On one item - the use of the fast outside lane - heavy vehicle drivers did not have the option of using it in any case. This lack of freedom, combined with the slowness and comparative lower manoeuvrability of their vehicles may also explain why hardly any heavy vehicle drivers said they drove faster because of the fence.

However more than a tenth of the light vehicle drivers said the fence made them drive faster in the dark; six per cent said they were more likely to use the fast lane. These two changes in night driving behaviour occurred only among light vehicle drivers, but heavy vehicle drivers did alter their use of main beam headlights. A tenth of the heavy vehicle drivers said the fence made them more likely to use main beam, a fifth of the light vehicle drivers said this. Less than a tenth of all drivers thought the fence made them less likely to use their main beam. The results of these changes lead to a tenth of all drivers saying that they were more aware of headlights of following vehicles on the experimental stretch of M6 than they were on other stretches of motorway.

These three changes in night driving behaviour were all related to one another, in other words there was a tendency for the same drivers to use main beam more, to drive faster and to use the fast lane more in response to the anti-dazzle fence. Although the numbers were very small it also seemed likely that the younger light vehicle drivers were more likely to change their speed and lane in the dark than older drivers.

There is also some evidence that a very small proportion of light vehicle drivers are affected by some kind of barrier shyness, in that they reported being less likely to use the fast lane on the experimental stretch because of the fence.

The survey confirms that drivers do in fact see the anti-dazzle fence as a safety measure - a way of reducing the number of accidents. Also and perhaps rather surprisingly, drivers were prepared to change their minds about preferring lighting to an anti-dazzle fence when asked to take the different costs into account. With the knowledge of the comparative costs, as many drivers chose the fence for night driving as chose lighting on the motorway.

7 Summary and conclusions

This survey of passengers' and drivers' attitudes towards an anti-dazzle fence was carried out as part of a wider evaluation. Like most innovations, there were doubts and objections surrounding it and pressure from different groups to ensure that the fence was both acceptable and effective. There were doubts about the acceptability of the fence from the environmental point of view; would people not object to a green plastic structure more than six feet high in the middle of a motorway? There was scepticism about whether the fence reduced the problem of dazzle sufficiently - it was suggested that it did not work for lorry drivers because they were above the fence. Finally there were fears that the side effects on people's driving behaviour would counteract any benefit from the fence.

Each of the foregoing chapters has dealt with one particular aspect, ending with a detailed summary of the findings. It just remains to draw together the main points from the report, to see if the preconceptions about the fence were valid. It should be borne in mind that for practical reasons the survey was carried out on a sample of drivers and passengers who parked in a service area - their views may possibly be slightly different from those of all travellers although we think this unlikely.

There was no evidence that people had major objections to the appearance of the fence; indeed a substantial proportion of travellers did not even notice it. Of those who were aware of it, three fifths rated it as being very or reasonably attractive to look at. When asked to compare the anti-dazzle fence with existing safety measures like lamp-posts and crash barriers more people said they preferred the fence, although many said they were not concerned with appearance and could not make a choice.

Contrary to expectations, drivers of heavy vehicles and light vehicle drivers answered our questions about the anti-dazzle properties of the fence in a very similar way. Around nine tenths of the drivers who had noticed the fence said it cut out all or most of the dazzle from oncoming headlights. As a result two fifths of all drivers felt that they were less aware of oncoming headlights on the experimental stretch than they were on other stretches of motorway. Thus, the survey has shown that according to drivers' reports, the fence appears to be very effective, and this was equally true for drivers of different vehicles.

Changes in driving behaviour due to the fence were, however, more often reported by light vehicle drivers than by drivers of heavy vehicles. A minority of drivers said they used main beam headlights more because of the fence, but this was enough for a tenth of all drivers to say they were more aware of headlights behind them on the experimental stretch. It would therefore seem that this side effect of the fence is a real, if small, problem. This was also true of "barrier shyness" which seemed to affect about three per cent of drivers. However this was partly compensated for by a reported tendency on the part of light vehicle drivers to drive faster and use the outside lane more at night than they did on other stretches of motorway.

An overall assessment of the anti-dazzle fence cannot of course be made until reliable accident figures become available in 1977. In the meantime this survey has given valuable supportive evidence on a variety of topics. Some of these - such as drivers' statements about their behaviour - can and will be checked by TRRL's roadside observations. It is self evident that the opinions on appearance cannot be treated in a similar way and thus they form an independent part of the overall picture. The drivers' opinions on the effectiveness of the fence will have to be seen in relation to the all-important accident changes. If the accident rates do not decrease then the drivers' opinions are simply an affirmation of the amount of dazzle cut out and the increase in driver comfort. If, as is hoped, the accident rates fall, then the drivers' views will endorse the overall assessment of the fence as an acceptable and efficient safety device.

Appendix A

Sampling report by Denise Lievesley and Phyllis Maidment

As explained in Chapter 1 two samples were required for the survey - one of drivers of all kinds of vehicles during both daylight and dark hours and one of passengers in light vehicles travelling in the daytime. This section describes in detail how these samples of drivers and passengers were selected.

A1 Sample size

The sample sizes aimed at were:

daylight hours

250 passengers

1,000 drivers

dark hours

1,250 drivers

However since it was impossible to predict traffic flow along the motorway and into the service station exactly it was accepted that either substantially more or substantially less travellers might be selected.

A2 Sample design

In order to achieve samples of both drivers and passengers it was necessary to split the sampling procedure into two stages:

- 1) a sample of vehicles
- 2) samples of drivers and passengers within the selected vehicles.

Ideally we should have liked to draw a sample of vehicles travelling along the relevant stretch of motorway, thereby giving every one of these vehicles a chance of selection. However, this would have involved either stopping selected vehicles or recording their registration numbers in order to trace them at a later date. Stopping vehicles would have been both dangerous and illegal, whilst taking registration numbers proved to be difficult (particularly at night) and tracing the selected vehicles would have been much too costly and time-consuming.

An alternative was to sample vehicles as they left this stretch of motorway. Selecting vehicles leaving by one of the motorway exits would have involved stopping them and, therefore, it was decided to limit the sample to vehicles stopping in Corley Service Area. Corley Service Area is situated approximately half way along the barrier (17 miles from Birmingham) and is the only service area at which ALL vehicles entering must have had experience of the barrier.

This means that vehicles passing the fence but not stopping in the service area were not sampled and to this extent the sample is unrepresentative of all vehicles driving past the fence.

Accepting this limitation, we then required a random sample of all vehicles entering Corley Service Area. This could only be achieved by selecting vehicles on the two approach roads since they could subsequently drive to several different parts of the Service Area.

A test was carried out to assess the feasibility of sampling vehicles on the approach roads and relaying details of selected vehicles by radio transmitters, to other interviewers situated at the 'stopping places' in Corley Service Area. The method was rejected for several reasons; the main ones being that very large numbers of interviewers were required to operate the scheme (and so it was costly) and the radio transmitters tended to be subject to a lot of interference.

The only practicable solution was to restrict the vehicles eligible for selection to those entering either of the four car or commercial parks. The petrol pump area was omitted for three reasons:

- (1) a large proportion of the people stopping there had already visited the car or commercial parks
- (2) there was very little room to interview at this area
- (3) it was thought that people would be less willing to be delayed in this area.

Drivers and passengers of vehicles stopping at the petrol pumps only may be different to those using other facilities at Corley Service Area. So in the same way that vehicles entering the Service Area may not be representative of all vehicles on the motorway - the results from drivers and passengers in vehicles entering the car parks should not be generalised to all Service Area users.

A3 First stage
- selecting
the sample
of vehicles

The first stage of the sampling procedure was to select a systematic random sample of vehicles which entered the car parks and commercial parks on the northbound and southbound sides of Corley Service Area between 7.00 and 22.00 hours each day from Friday November 1st 1974 to Thursday November 7th 1974 inclusive. An interviewer in each park counted every vehicle entering the park and selected vehicles at a constant interval. These selected vehicles were then assigned (also at a constant interval) to the passenger sample or the driver sample and allocated to another interviewer. At night all vehicles were part of the driver sample.

Police cars, AA or RAC vans and other vehicles serving the public on emergency duty, such as breakdown vans and ambulances were defined as ineligible for both samples. Heavy vehicles were ineligible for the passenger sample.

A4 Second Stage - selecting an individual in the vehicle

The second stage of the sampling procedure was the selection of individuals for interview from the selected vehicles. If the vehicle was part of the driver sample the interviewer simply approached the driver for interview.

If the vehicle was part of the passenger sample the interviewer systematically numbered passengers aged 18 or more according to their seating position in the vehicle. They then used a specially designed random number table to select one passenger for interview. A representative sample of passengers entering the car parks would have been achieved if all passengers in the selected vehicles had been interviewed. This however was not practicable. Instead the data obtained from each passenger was weighted by the number of eligible passengers in the vehicle.

A5 Sampling and field period

Since the flow of vehicles, and possibly the type of vehicle, varies according to the time of day and day of the week it was decided to carry out the fieldwork day and night for seven consecutive days. However the flow of traffic between the hours of 22.00 and 07.00 hours made it uneconomic to employ interviewers for this period and so the fieldwork was limited to the hours of 07.00 - 22.00.

Obviously the onset of darkness differs from day to day being affected by weather conditions, but, using data obtained from the Greenwich Observatory, we defined daytime as up to 17.00 hours and night-time as after 17.00 hours.

A6 Calculation of sampling intervals

In order to calculate the required sampling intervals we needed to be able to solve the following equations:

$$\frac{\text{Daytime}}{nt} PL = 250 \text{ and } \frac{(t-1)}{nt} (L + H) = 1,000$$

where P is proportion light vehicles containing at least one eligible passenger

L is number light vehicles entering parks in daytime

H is number heavy vehicles entering parks in daytime

and we wished to calculate n (the sampling interval during the day) and t (the sub-sampling interval for the passenger sample).

$$\frac{\text{Night-time}}{u} V = 1,250$$

where V is number of vehicles entering parks at night and we wished to calculate u (the sampling interval during the night).

A7 Estimation of traffic flow

No counts of vehicles entering Corley Service Area were available. We, therefore, decided to carry out some counting exercises during the feasibility study and pilot survey. The data obtained were:

- (1) the numbers of vehicles entering Corley Service Area, the car parks and the commercial parks from 06.00 to 24.00 on 31 July 1974 (a Wednesday).

- (2) the number of vehicles entering the car and commercial car parks from 06.00 to 23.00 on 12 September 1974 (a Thursday).

The Transport and Road Research Laboratory were monitoring traffic flow along the relevant stretch of the M6 and were able to provide us with hourly counts taken from 06.00 25 March 1974 - 06.00 15 April 1974 of northbound and southbound traffic.

Using these data the percentage of all weekly traffic which travelled along the M6 on Thursdays lay between 16.1 and 16.7%. It was assumed that the same proportion of traffic turns off the M6 motorway into the car and commercial parks on each day of the week. (Thus if 16.1% of the traffic travels along the motorway on a Thursday we assumed that Thursday would account for 16.1% of all vehicles turning off into the car and commercial parks during the week).

Using this assumption and the counts taken on the pilot survey (ie. 12 September 1974) estimates were made of the number of vehicles entering the car and commercial parks during a week.

- A8 Estimation of proportion of heavy vehicles and those without passengers Heavy vehicles were counted separately from light ones from 07.00 hours - 14.00 hours on the pilot survey. Light vehicles accounted for 58% of the total. During the same period the proportion of light vehicles containing at least one eligible passenger was estimated to be two fifths. These estimates were used to calculate the sampling intervals.
- A9 Sampling intervals used Where possible several different calculations were made to estimate the sampling intervals and the smallest interval was then used. This was because it was considered to be more important to obtain too many interviews rather than too few.
- Every seventh vehicle was selected during the daytime. Half of these were allocated to the driver sample, half to the passenger sample.
- At night every fifth vehicle was selected.
- A10 Results The target samples of daytime drivers and passengers were reached by the end of the fifth day of sampling. Although it would have been possible to continue interviewing for the last two days, ensuring the correct representation of days of the week it was not felt to be worth the extra expense involved. Thus it was decided not to interview during the daytime of Wednesday 6 November and Thursday 7 November although counting was continued.

The error of the predicted sample sizes was due to the inadequacy of the data: in particular data were not available to make projections of the M6 traffic flow for November and because information about traffic flow into Corley related to two week days, one of which was during the holiday period.

Subsequent examination of traffic statistics for the M6 for 12 September 1974 and for the period of the survey has revealed the following errors in our assumptions:

- (1) on September 12 (the basis of our estimates) 11.6% of traffic turned off the M6 into Corley. During the fieldwork period an average of 14.7% turned off, and on the Sunday this was more than 16%,
- (2) the proportion of light vehicles, estimated to be 58% was, on the survey, found to be 64%,
- (3) the proportion of light vehicles containing at least one eligible passenger, estimated to be 40%, was in fact 54%.

It can be shown that (2) and (3) above would account for an increase in passenger sample size of almost 50%.

Appendix B

The Schedule

Passengers were not asked questions about driving and the motorway after dark. The particular questions they were not asked are marked with an asterisk.

S1058

M6 SURVEY - DRIVER

1 1 1 1 1 1 1 1

I Interviewers' name		VI Type of vehicle:-	
II Authorisation number.....	1	Lorry.....	1
III Northbound car park.....	2	Van.....	2
Southbound commercial park.....	3	Minibus.....	3
Southbound car park.....	4	Car.....	4
Southbound commercial park.....	5	Motorbike.....	5
IV Daytime.....	1	VII Outcome:- Interview.....	1
Dark = 5pm or later.....	2	Refusal.....	2
V Day of week:- Monday.....	1	Non-contact.....	3
Tuesday.....	2	REASON FOR REFUSAL/NO CONTACT	3
Wednesday.....	3		
Thursday.....	4		
Friday.....	5		
Saturday.....	6		
Sunday.....	7		

1. About how often have you driven on this stretch of the M6 motorway this year, that is since January 1st?

PROMPT AS NECESSARY	1	5 or more times a week	1
	2	2-4 times a week	2
	3	Once a week	3
	4	Less than once a week but more than once a month	4
	5	Once a month	5
	6	Less than once a month but more than once a year	6
	7	Once this year	7
	8	Other (specify)	8

2. How often (how many times) have you driven on this stretch of the M6 in the dark this year, that is since January 1st?

PROMPT AS NECESSARY	1	5 or more times a week	1
	2	2-4 times a week	2
	3	Once a week	3
	4	Less than once a week but more than once a month	4
	5	Once a month	5
	6	Less than once a month but more than once a year	6
	7	Once this year	7
	8	Never (since 1.1.74)	8
	9	Other (specify)	9

2

a3. When you are driving on motorways in the dark do you find that headlights coming towards you, disturb you-

1	a lot.....
2	to some extent.....
3	or not at all?.....
4	go to Q.6

a4. How do you find headlights coming towards you on this stretch of the M6 compared with other stretches of motorway?

1	more aware of them.....
2	less aware of them.....
3	or is it about the same as on other stretches?.....

a) Why do you think you are more/less aware of them?

a5. How do you find headlights of vehicles behind you on this stretch of the M6 compared with other stretches? Would you say you are:-

1	more aware of headlights behind.....
2	less aware of them.....
3	or is it about the same as on other stretches?.....

a) Why do you think you are more/less aware of them?

IF ALREADY MENTIONED FENCE AT Q.4 OR Q.5 RING

1	go to Q.8
---	-----------

6. Thinking just about the last five or six mile stretch of motorway, how many times have you been about it which makes it different from other stretches of motorway?

1	go to Q.8
2	Other (specify).....

7. Another/one difference is the central barrier, there is an extra fence on top of the crash barrier. Was this something you noticed or not?

1	Yes.....
2	No.....

8. (Can I just check - you have already mentioned the fence in the last question, can you tell me (again) what you think the fence is for?)

1	anti-dazzle.....
2	Don't know.....
3	Other (specify).....

DAYTIME DRIVERS - IF NOT DRIVEN ON THIS STRETCH IN THE DARK, (CHECK Q2 CODE 8) GO TO Q.15

EXPLAIN FENCE AS NECESSARY

a9. How much of the dazzle from oncoming headlights does the fence cut out?
Would you say it cuts out:-

RUNNING
PROMPT

- all of it..... 1 go to Q.11
most of it..... 2
some of it..... 3
or none of it?.. 4

SPONTANEOUS ONLY

Don't know..

a10. Are there any changes that could be made to the fence which would make it better at cutting down dazzle from headlights coming towards you?

No...

a11. Do you think the fence makes you more likely to use main beam headlights, less likely to use them or does it make no difference?

- More likely... 1 ask a
Less likely... 2 ask b
No difference.. 3

a) Can you explain why it makes you more likely to use main beam?

b) Can you explain why it makes you less likely to use main beam?

a12. If you could choose for night driving, would you prefer a fence like this one or lighting on the motorway?

- Fence..... 1
Lighting..... 2 ask a
No preference... 3

a) If you knew that lighting was twice as expensive to install and maintain as a fence would you still choose lighting for night driving?

- No..... 1
Yes - still choose lighting.. 2

TO ALL WHO HAVE NOTICED FENCE

a13. DAYTIME DRIVERS CHECK: has informant driven on this stretch after dark since 1st January 1974 (Q. 2 front page)?

- Yes... 1
No.... 2 ask Q.15
and 16 about
daytime only

a14. NIGHT-TIME DRIVERS Can I just check - have you driven on this stretch in daytime since 1st January 1974?

- Yes... 1
No.... 2 ask Q.15
and 16 about
dark only

a15. In daylight, does the fence make you drive faster, more slowly, or does it make no difference to the speed you drive?

- Faster..... 1
Slower..... 2
No difference.. 3

a) IF DRIVEN ON THIS STRETCH IN THE DARK
What about in the dark.....? (REPEAT
QUESTION AS NECESSARY)

LORRY DRIVERS GO TO Q.17

a16. In daylight when you are driving down this stretch of M6 with the fence do you mainly use:-

- the slow lane..... 1
the middle lane..... 2 ask a
or the fast lane?.. 3

a) In daylight, does the fence make you more likely or less likely to use the fast lane, or does it make no difference?

- More..... 1
Less..... 2
No difference... 3

b) IF DRIVEN ON THIS STRETCH IN THE DARK
What about in the dark.....? (REPEAT
Q. 16 and 16a)

a17. Do you think the fence could make any difference to the number of accidents on this stretch of the M6.

- Yes..... 1 ask a
No..... 2
Don't know.. 3

a) Do you think there would be more accidents or less accidents?

- More..... 1
Less..... 2

*18. Does the fence affect your view of traffic coming towards you?

Yes.....
No.....

a) Does this bother you--

RUNNING
PROMPT

a lot.....
to some extent.....
or not at all?.....

IF NOT DRIVEN ON THIS STRETCH IN THE DAYLIGHT (CHECK 11A CODE 2).....
TO ALL WHO HAVE DRIVEN ON THIS STRETCH IN THE DAYLIGHT

Now I'd like to ask a few questions about the appearance of the fence
19. Do you find that the fence affects your view of the surrounding
countryside or not?

Yes.....
No.....
Not concerned with view.....

a) Does this bother you--

RUNNING
PROMPT

a lot.....
to some extent.....
or not at all?.....

20. Which do you find more attractive in the central reservation,
the usual sort of crash barrier or a special crash barrier with
a fence like this one on top of it?

Usual crash barrier.....
Crash barrier and fence.....
Don't mind/Can't choose.....

21. Which do you find more attractive in daytime, a motorway with
a fence like this one, or a motorway with lamp-posts?

Fence.....
Lamp-posts.....
Don't mind/can't choose.....

22. Would you say the fence is--

RUNNING
PROMPT

very attractive.....
reasonably attractive.....
unattractive.....
or ugly?.....
Not concerned with looks.....
Don't know.....

SPONTANEOUS
ONLY

I'd now like to ask a few questions about yourself and your driving?

24. How many years have you been driving altogether?

Less than 1 year..... 1
1 year but less than 2 years..... 2
2 years but less than 5 years..... 3
5 years but less than 10 years..... 4
10 years but less than 20 years..... 5
20 years but less than 30 years..... 6
30 years but less than 50 years..... 7
50 years or more..... 8

25. Could you give me an estimate of the number of miles you
have driven in the last 12 months?

more than half.....
less than half.....
or none of it?.....
Exactly half.....

SPONTANEOUS ONLY

27. How much of your total mileage was motorway driving?
Was it--

RUNNING
PROMPT

more than half.....
or less than half?.....
Exactly half.....

SPONTANEOUS ONLY

28. Do you wear spectacles or contact lenses for driving?

Spectacles.....
Contact lenses.....
Neither.....

29. What was your age last birthday?

Under 18..... 1
18 - 24..... 2
25 - 29..... 3
30 - 39..... 4
40 - 49..... 5
50 - 59..... 6
60 - 69..... 7
70 or more..... 8

30. Where do you live? COUNTY AND TOWN

31. RECORD SEX

Male..... 1
Female..... 2



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